

Fig. 1A

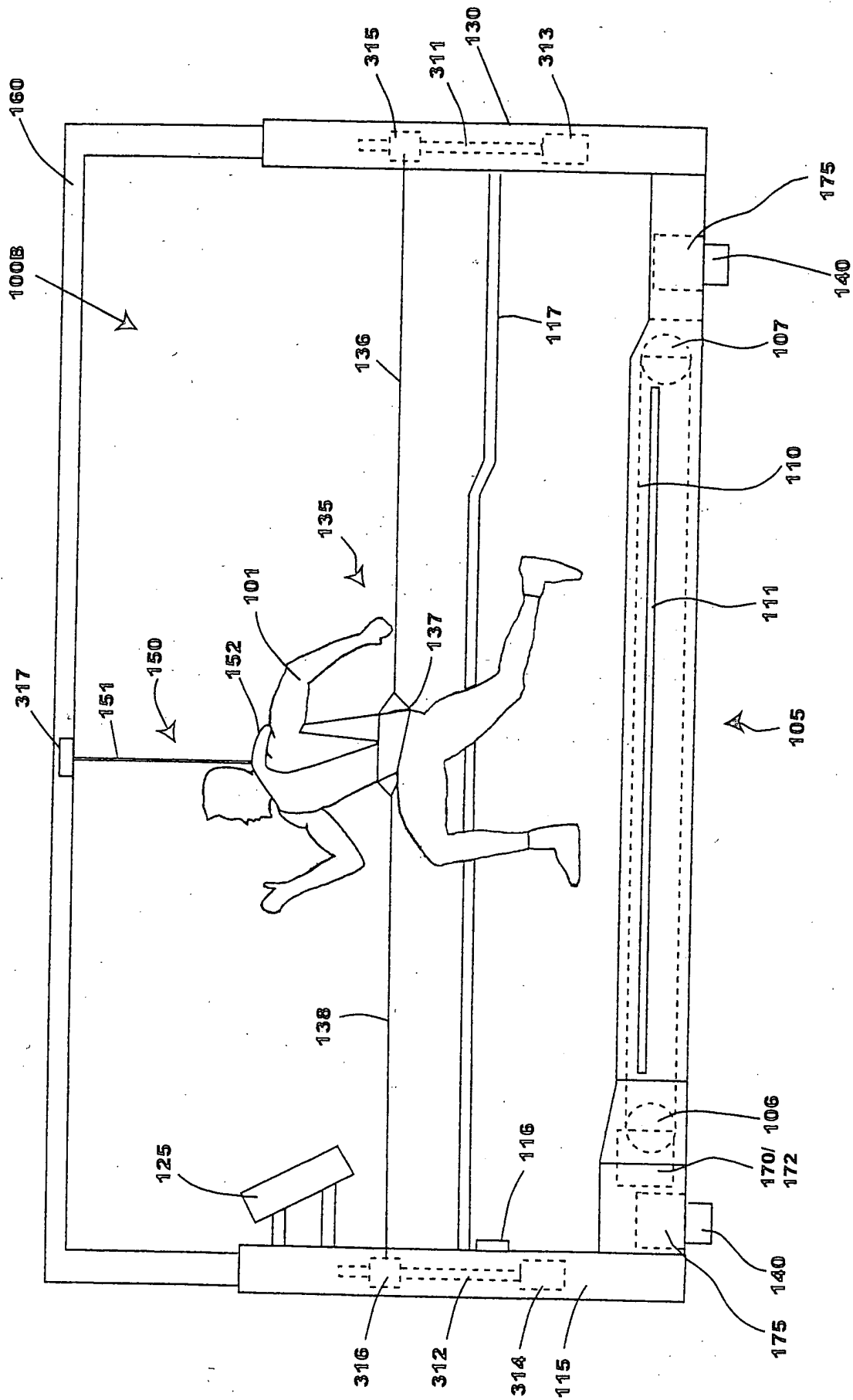


Fig. 1B

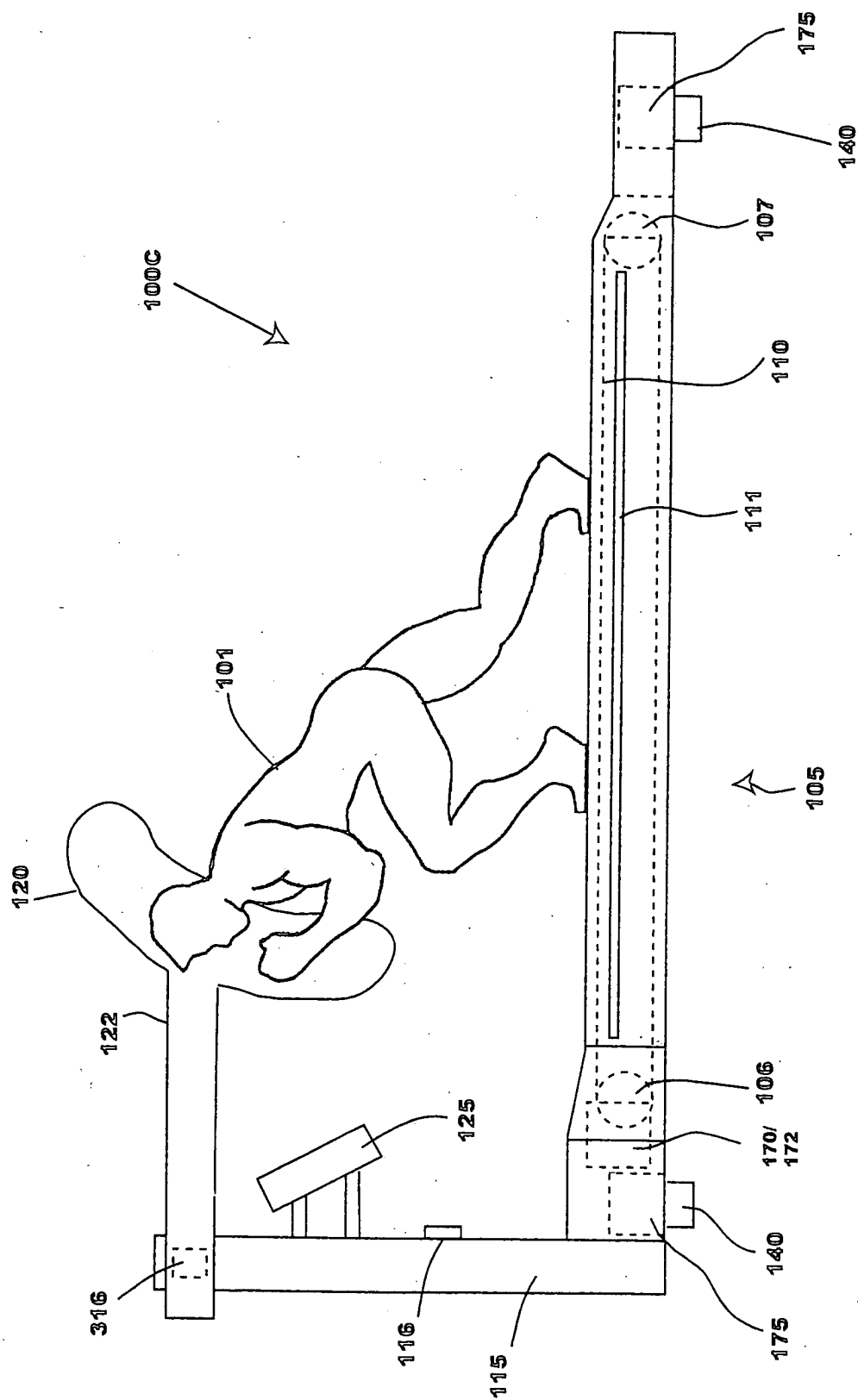
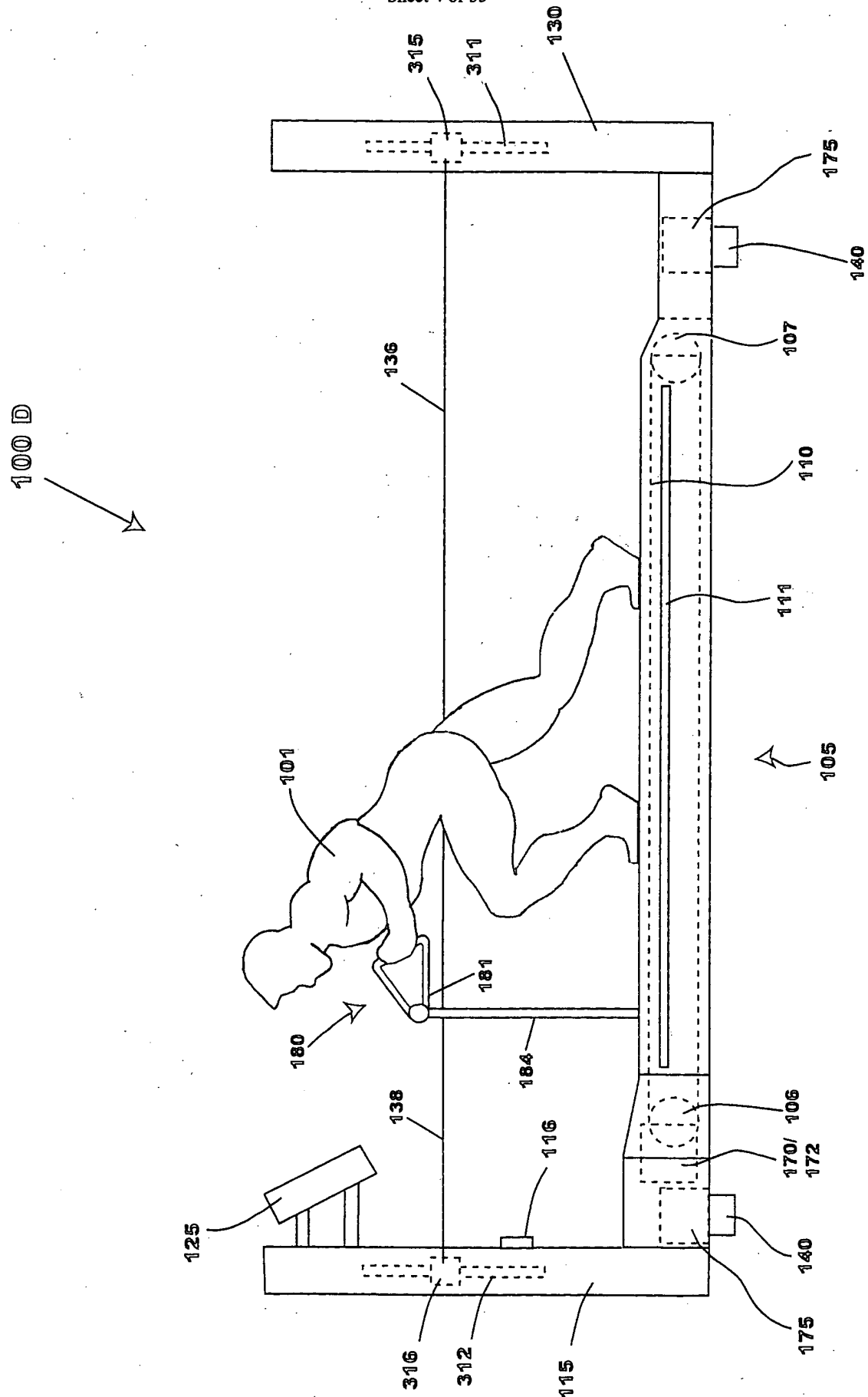
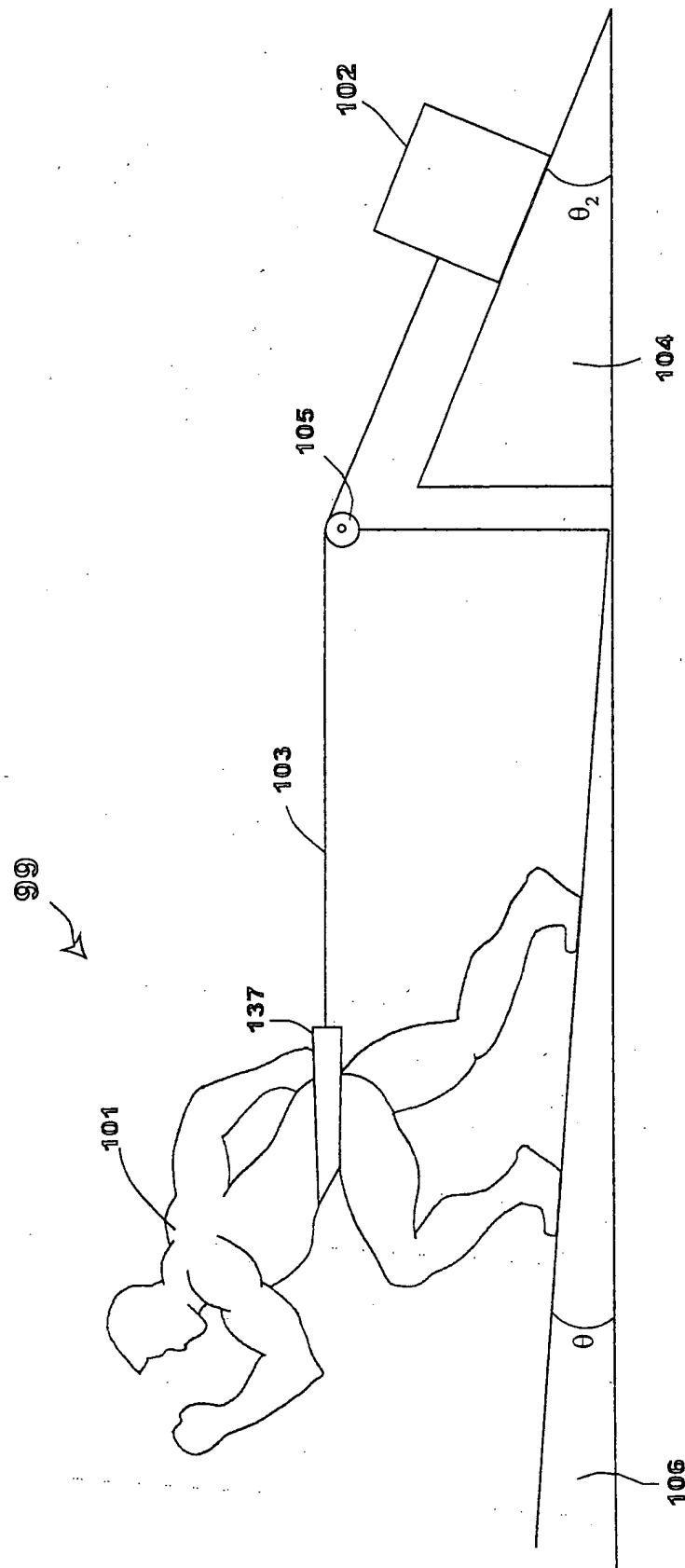


Fig. 1C



**Fig. 1D**



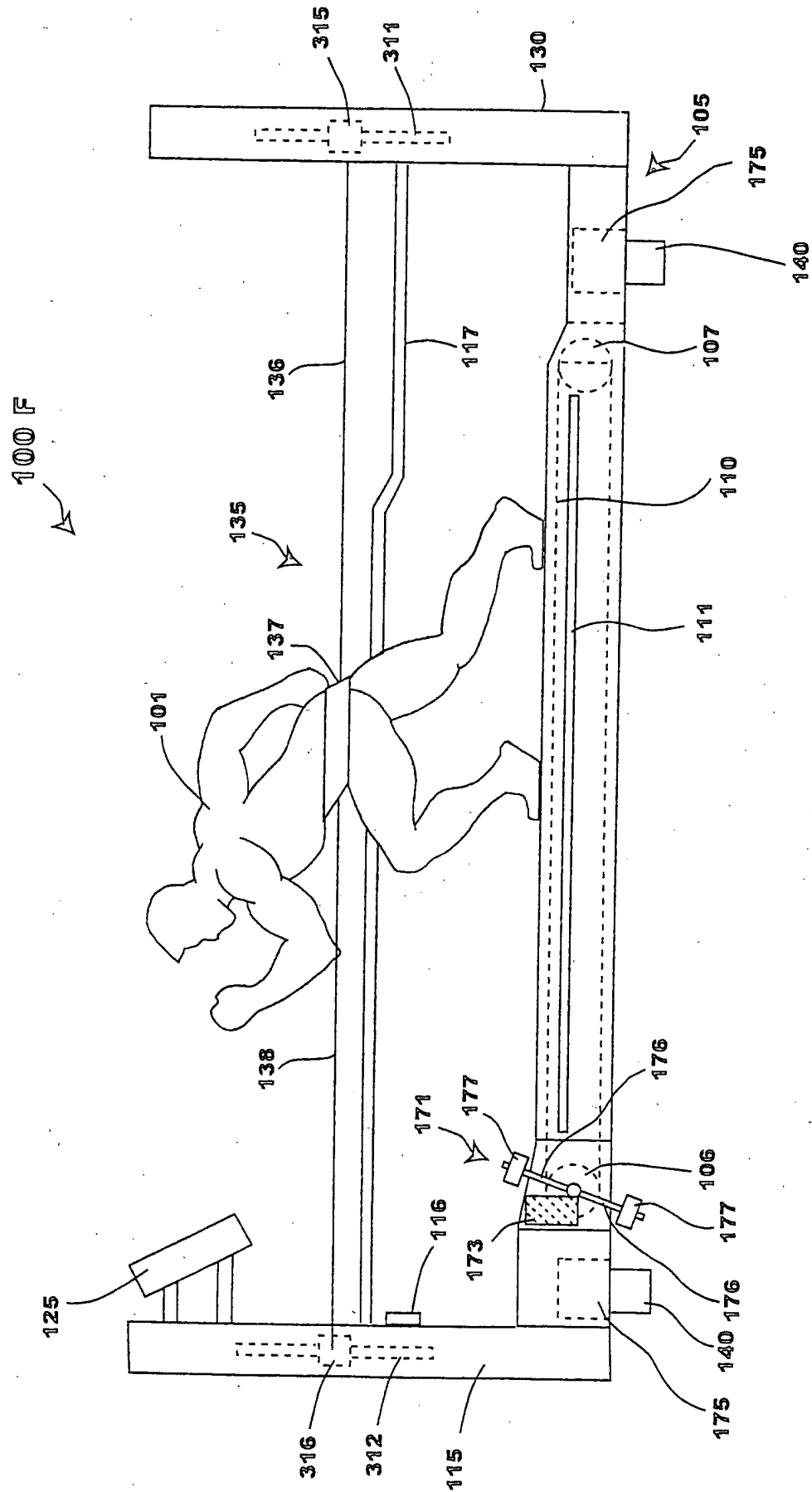


Fig. 1F

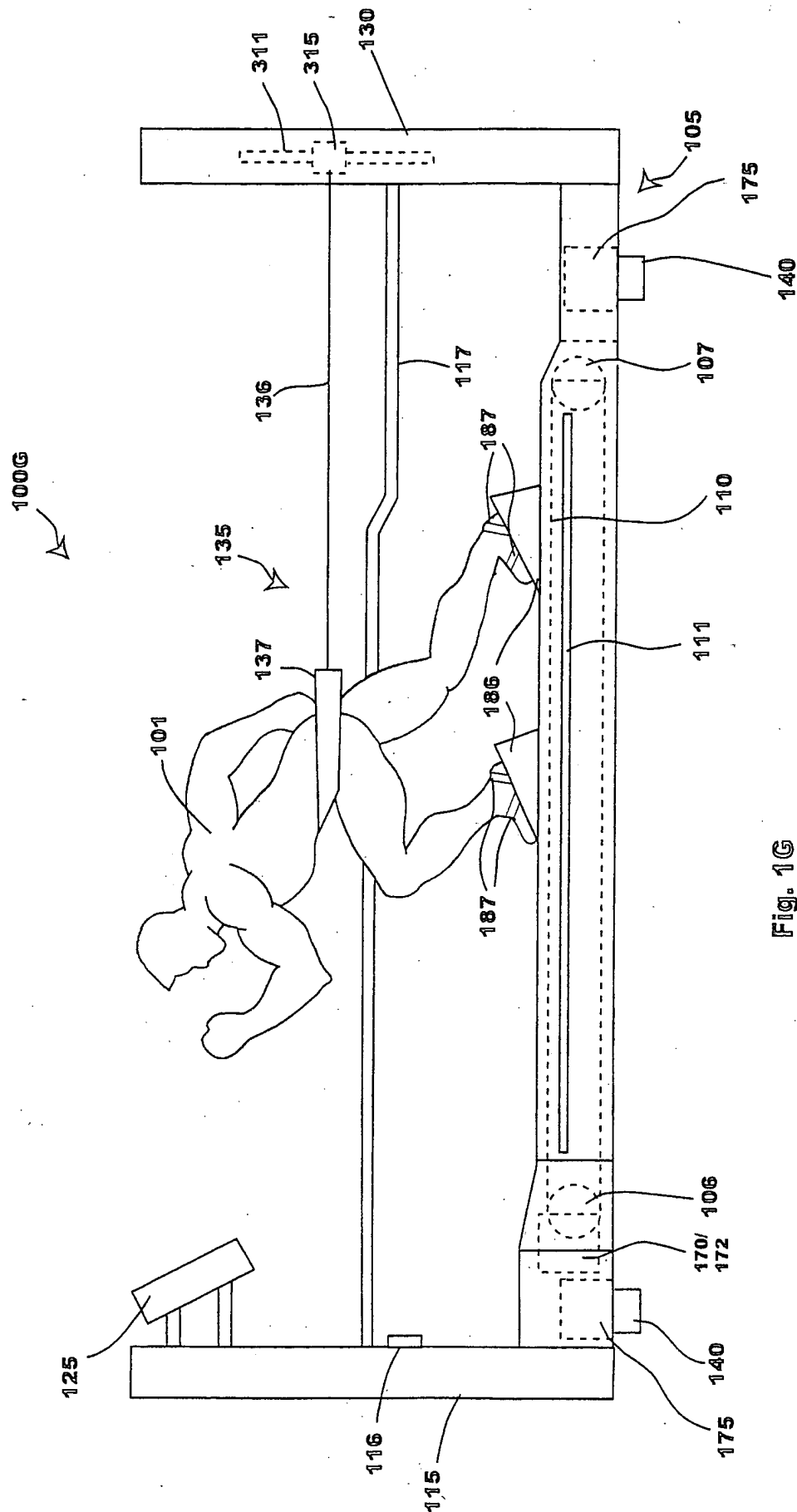


Fig. 1G

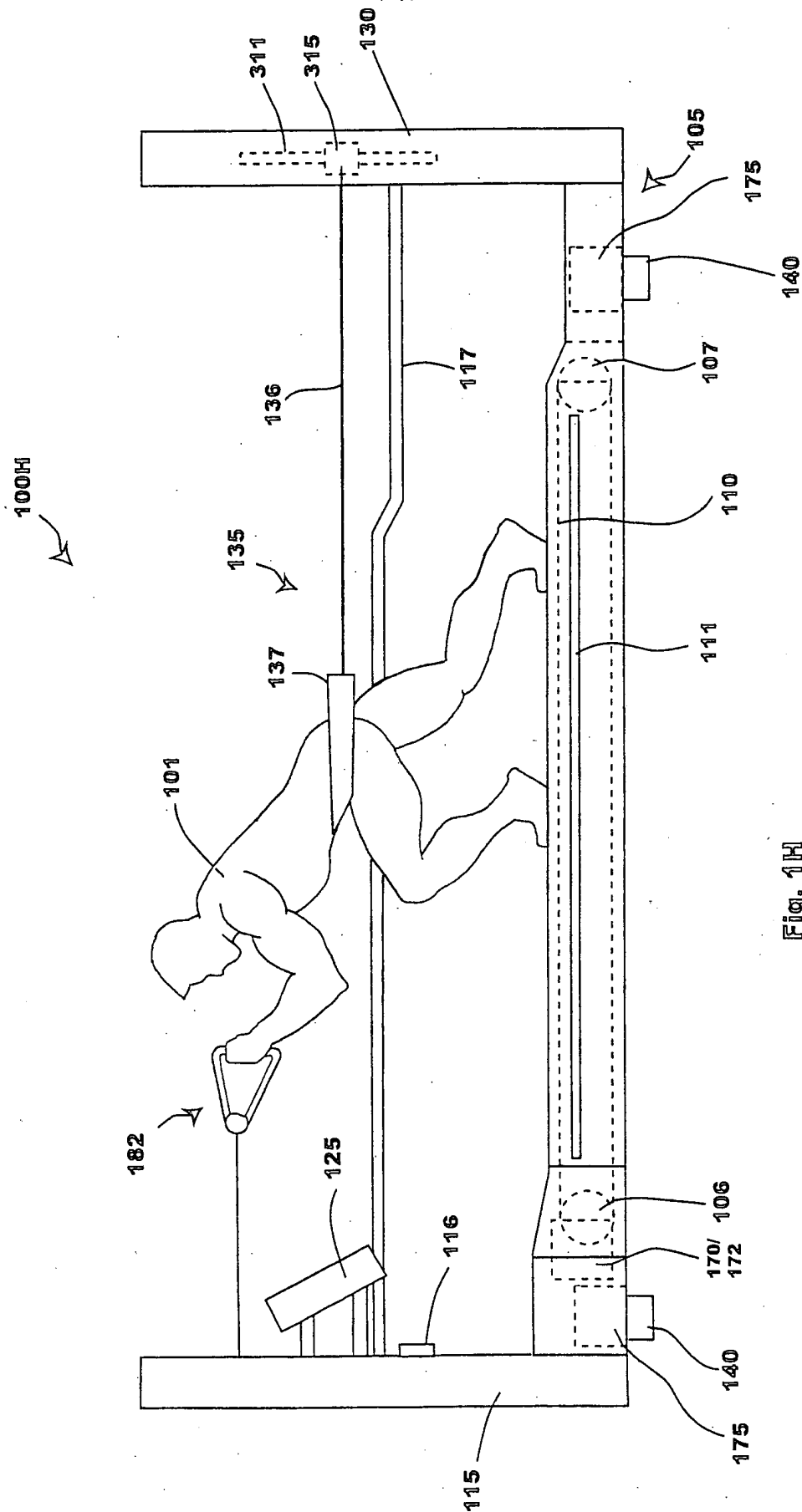


Fig. 1H.



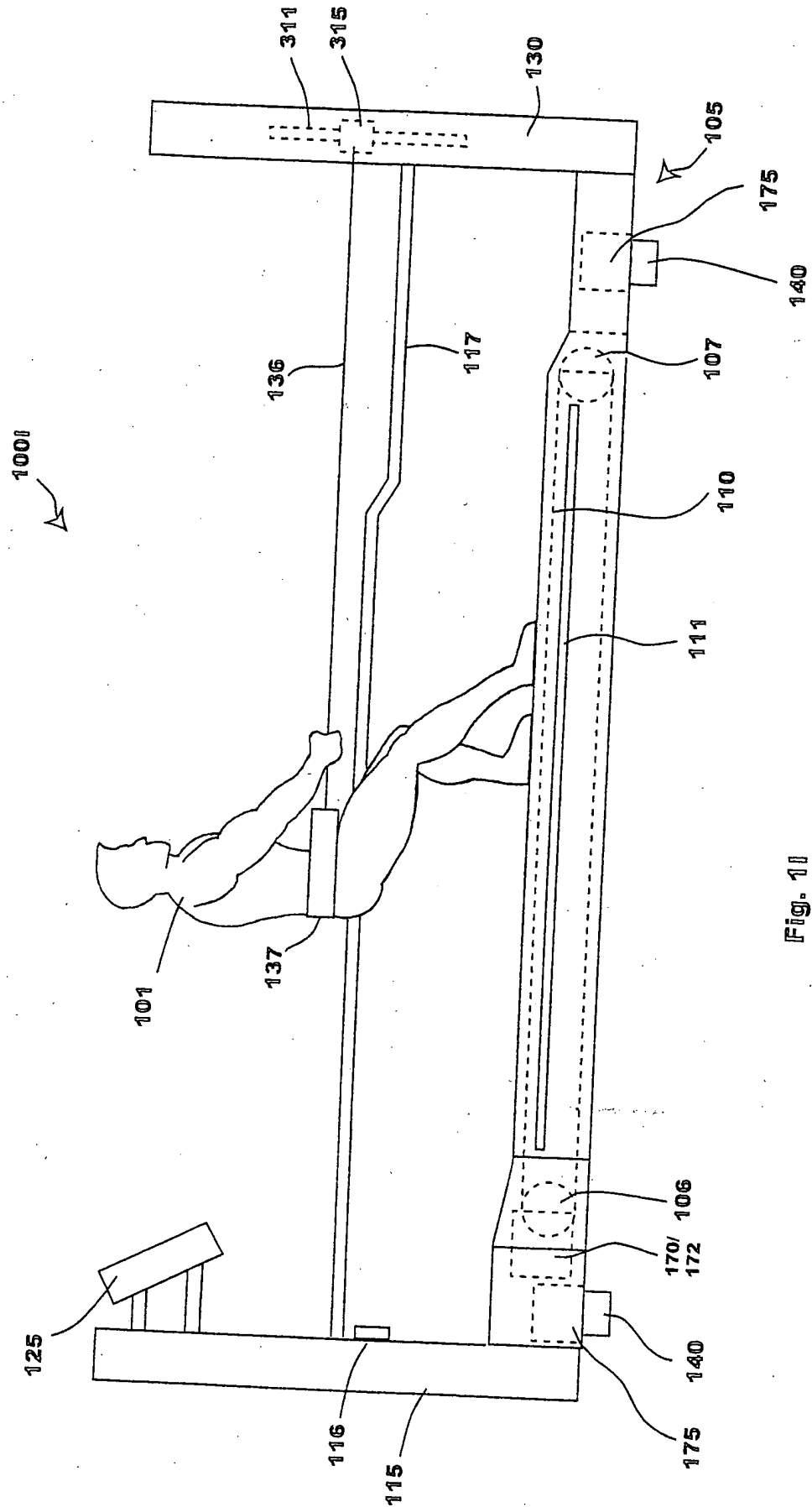


Fig. 11

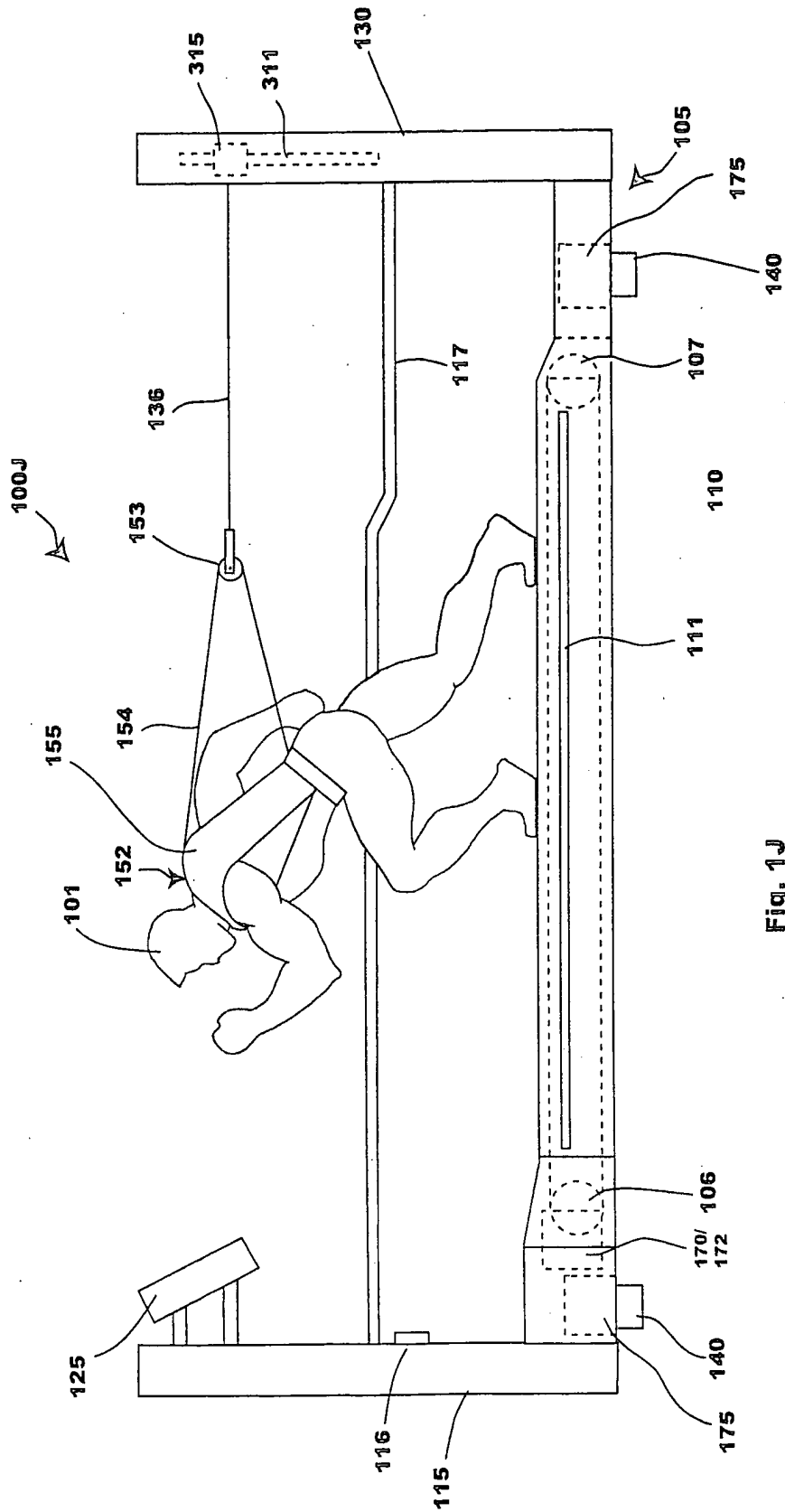
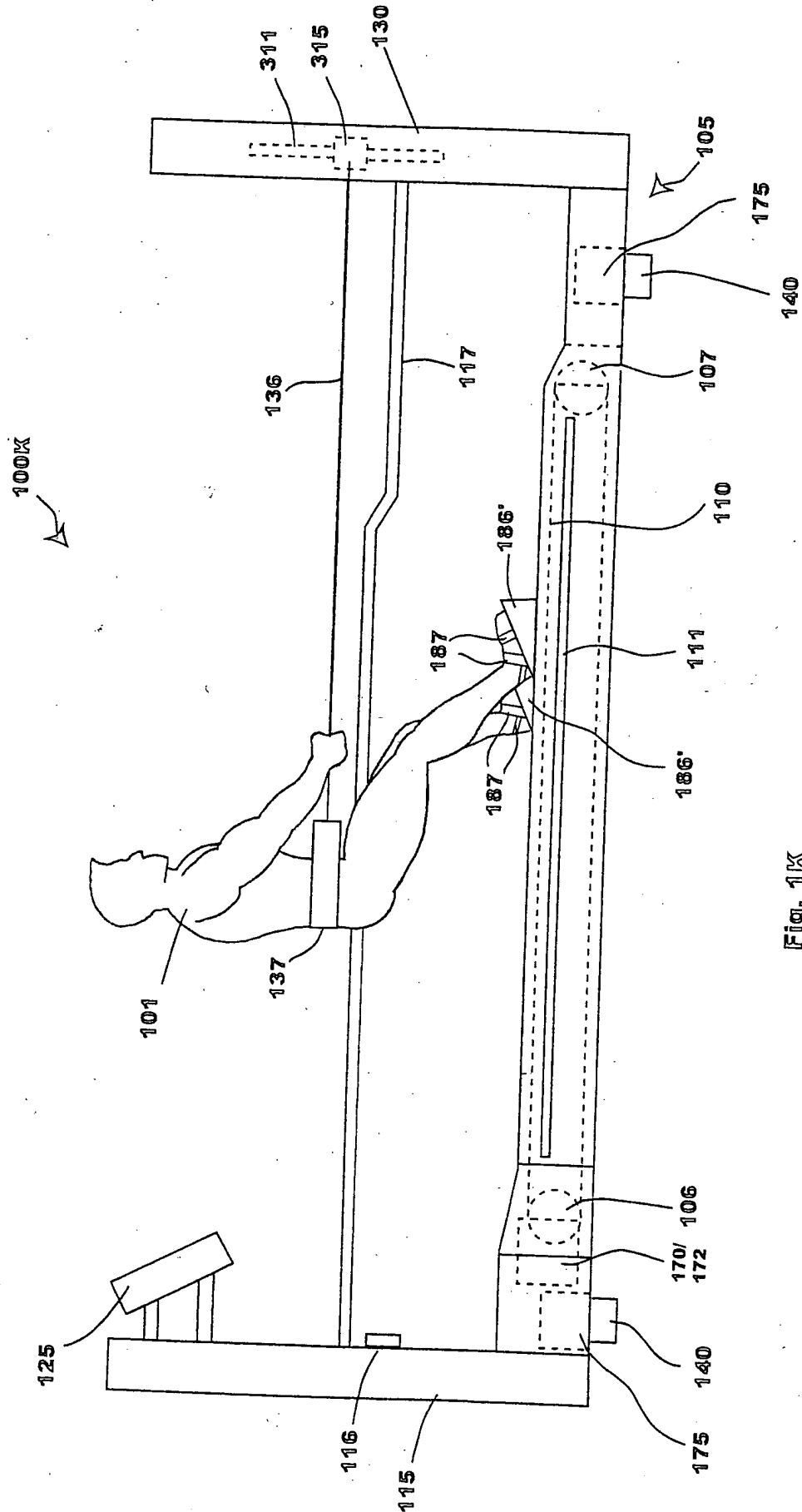
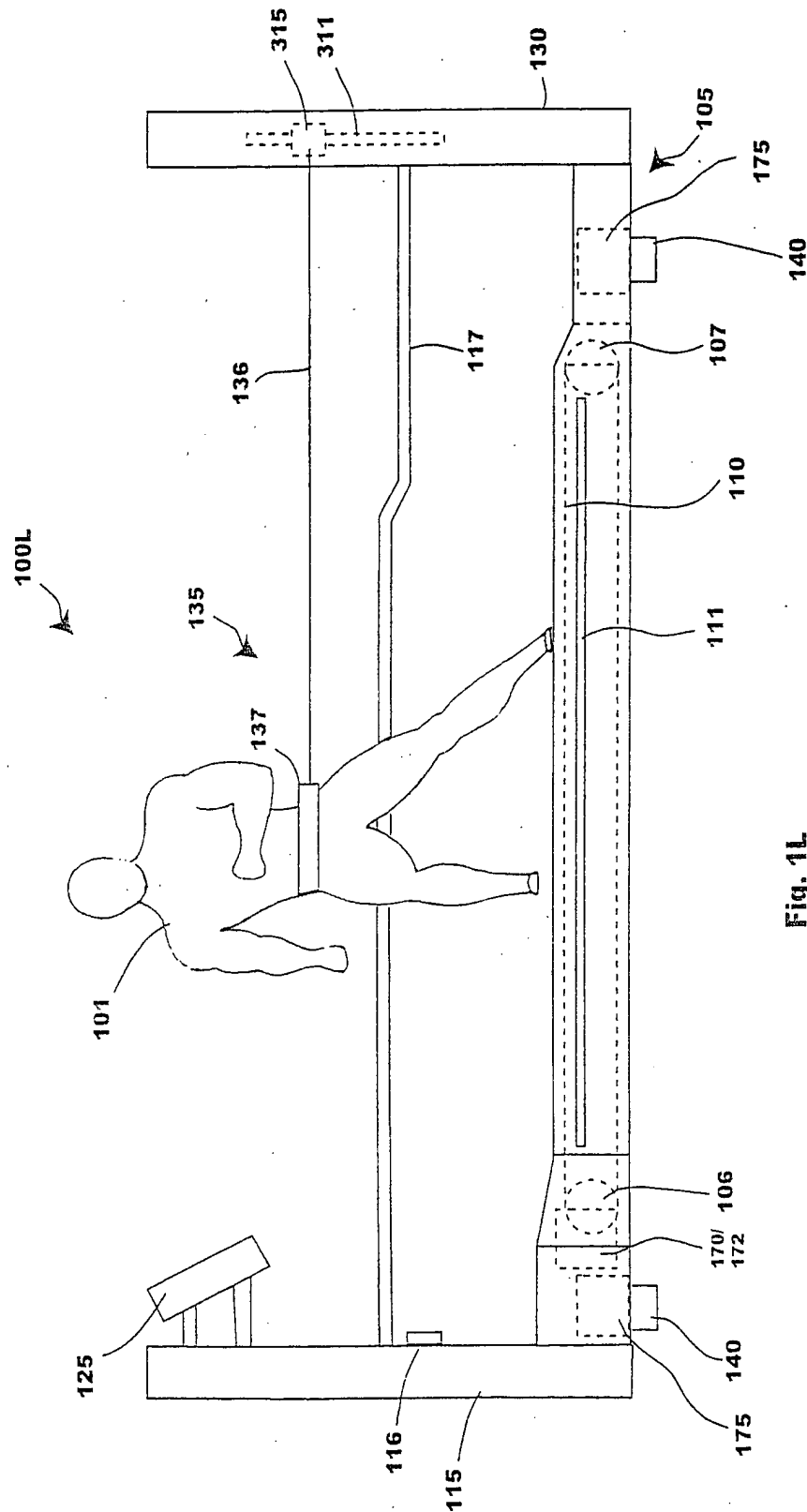


Fig. 1J





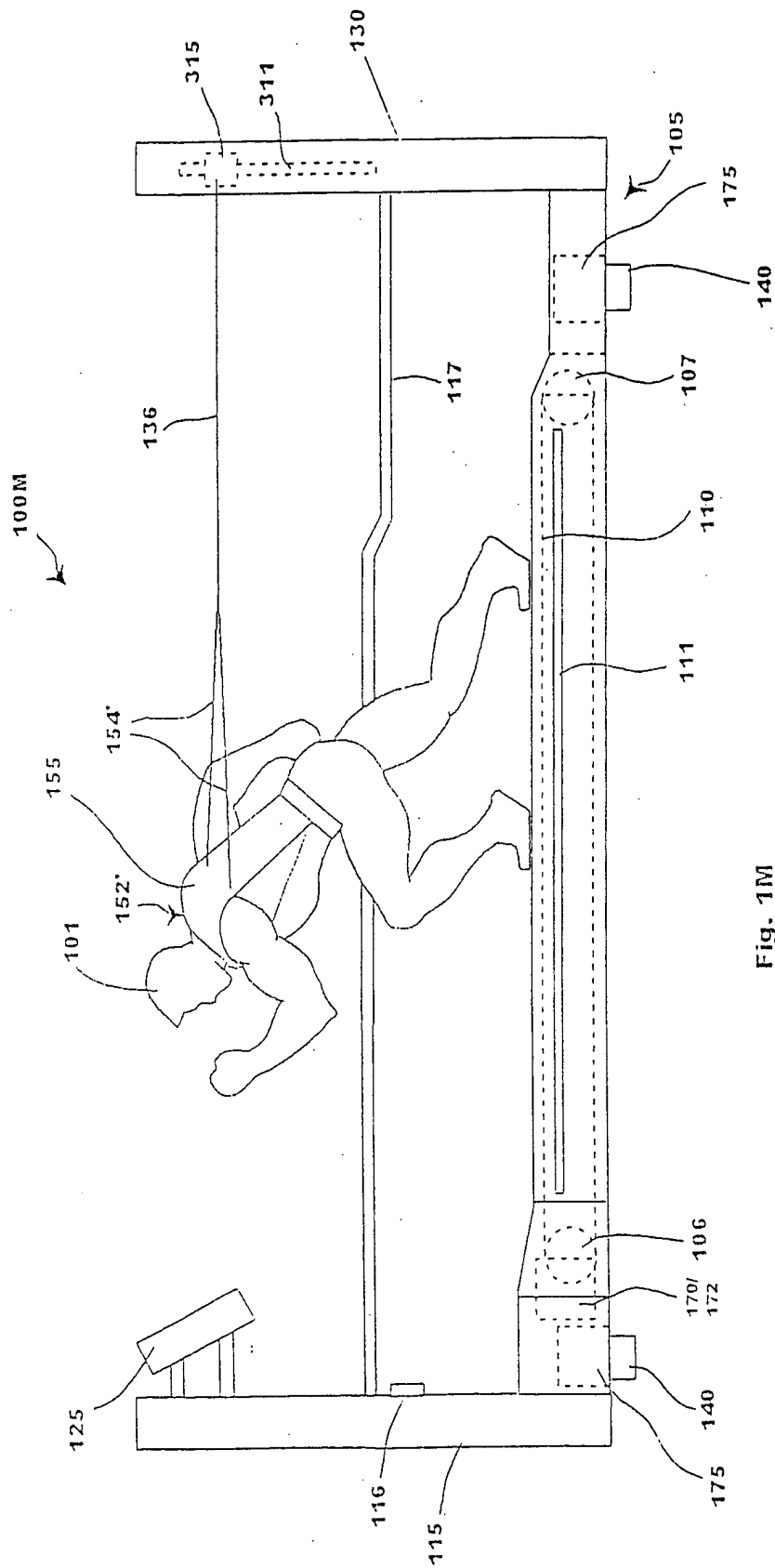


Fig. 1M

FIG. 2A -- Modes of Operation					
	Description	I.	II.	III.	IV.
	Mode	Sprint Simulation	Bob Sled Simulation	Isokinetic Overspeed	Isotonic Overspeed
	Predominant movement	Concentric	Concentric & Eccentric	Concentric	Concentric
	Force	Non-constant	Non-constant	Non-Constant	Constant
	Velocity	Non-constant	Non-constant	Constant	Non-Constant
	Direction of Motion	Forward	Forward & Reverse	Forward	Forward
	Harnessing	Alt (Fore optional)	Fore & Alt	Fore (Alt optional, Overhead optional)	Fore (Alt optional, Overhead optional)
	Equation of Motion	Eq. (3.1.2)	Eq. (3.2.2)	$V = V_o$	$F_1 = F_{set-l}$
Input Variables	Mass of subject	$m_1$	$m_1$		
	Height of subject	H	H		$m_1$
	Cross-sectional area of subject	Q	Q		
	Mass of Load (e.g., Sled)		$m_2$		
	Additional Drag (e.g., of Sled)		$F_d$		
	Start trigger distance		$D_1$		
	Ramp Parameters				
	% over $V_1$			p	
	Fore Force Set				$F_{set-l}$
	Overhead Force Set	$F_{set-o}$ (optional)		$F_{set-o}$ (optional)	$F_{set-o}$ (optional)
Calculated Variables	Termination variable (D=distance, T=duration)	$D_1$ or $T_1$	$D_1$ or $T_1$	$D_1$ or $T_1$	$D_1$ or $T_1$
	Drag coef. of running subject		$C_1$		
	Overspeed Velocity			$V_o$	
	Virtual mass	$m_1^*$ (optional)			$m_1^*$ (optional)
Measured Data	Velocity	V	V		V
	Force (Alt)	$F_a$	$F_a$	$F_a$ (optional)	$F_a$
	Force (Fore)	$F_1$	$F_1$	$F_1$	$F_1$
	Force (Overhead)				$F_o$
Calculated Data	Distance	D	D	D	D
	Velocity	$V$ (update)	$V$ (update)		$V$ (update)
	Initial Acceleration	A	A	A	A
					Terminal velocity determination
					Concentric
					Non-Constant
					Non-Constant
					Forward
					Overhead
					Velocity increase until runner failure

FIG. 2B -- Modes of Operation					
	Description	VI. Forward Constant Load	VII. Reverse Constant Load	VIII. Constant Force	IX. Constant Velocity
Mode					
Predominant movement		Concentric	Eccentric	Concentric/Eccentric	Concentric/Eccentric
Force		Non-constant	Non-constant	Constant	Non-Constant
Velocity		Non-constant	Non-constant	Non-Constant	Constant
Direction of Motion		Forward	Reverse	Forward/Reverse	Forward/Reverse
Harnessing		Alt (Fore optional)	Alt, Overhead	Alt	Alt/Fore
Equation of Motion		Eq. (3.6.2)	Eq. (3.7.2)	velocity adjustment until $F_a = F_{set}$	$V = V_{set}$
Input Variables					
$m_1$	Mass of subject	$m_1$	$m_1$		
H	Height of subject				
Q	Cross-sectional area of subject				
$m_2$	Mass of Load	$m_2$	$m_2$		
$F_d$	Additional Drag (e.g., of Load)	$F_d$	$F_d$		
$V_{set}$	Velocity Set				$V_{set}$
$F_{set-a}$	Alt Force Set			$F_{set-a}$	
$F_{set-o}$	Overhead Force Set	$F_{set-o}$ (optional)	$F_{set-o}$ (optional)	$F_{set-o}$ (optional)	$F_{set-o}$ (optional)
$D_T$ or $T_T$	Termination variable (d=distance, D=duration)	$D_T$ or $T_T$	$D_T$ or $T_T$	$D_T$ or $T_T$	$D_T$ or $T_T$
Calculated Variables					
$m_1^*$	Virtual Mass	$m_1^*$	$m_1^*$		
Measured Data					
V	Velocity	V	V	V	V
$F_a$	Force (Alt)	$F_a$	$F_a$	$F_a$	$F_a$
$F_T$	Force (Fore)	$F_T$ (optional)			$F_T$
Calculated Data					
D	Distance	D	D	D	D
V(update)	Update velocity	V(update)	V(update)	V(update)	V(update)
A	Acceleration	A	A	A	A

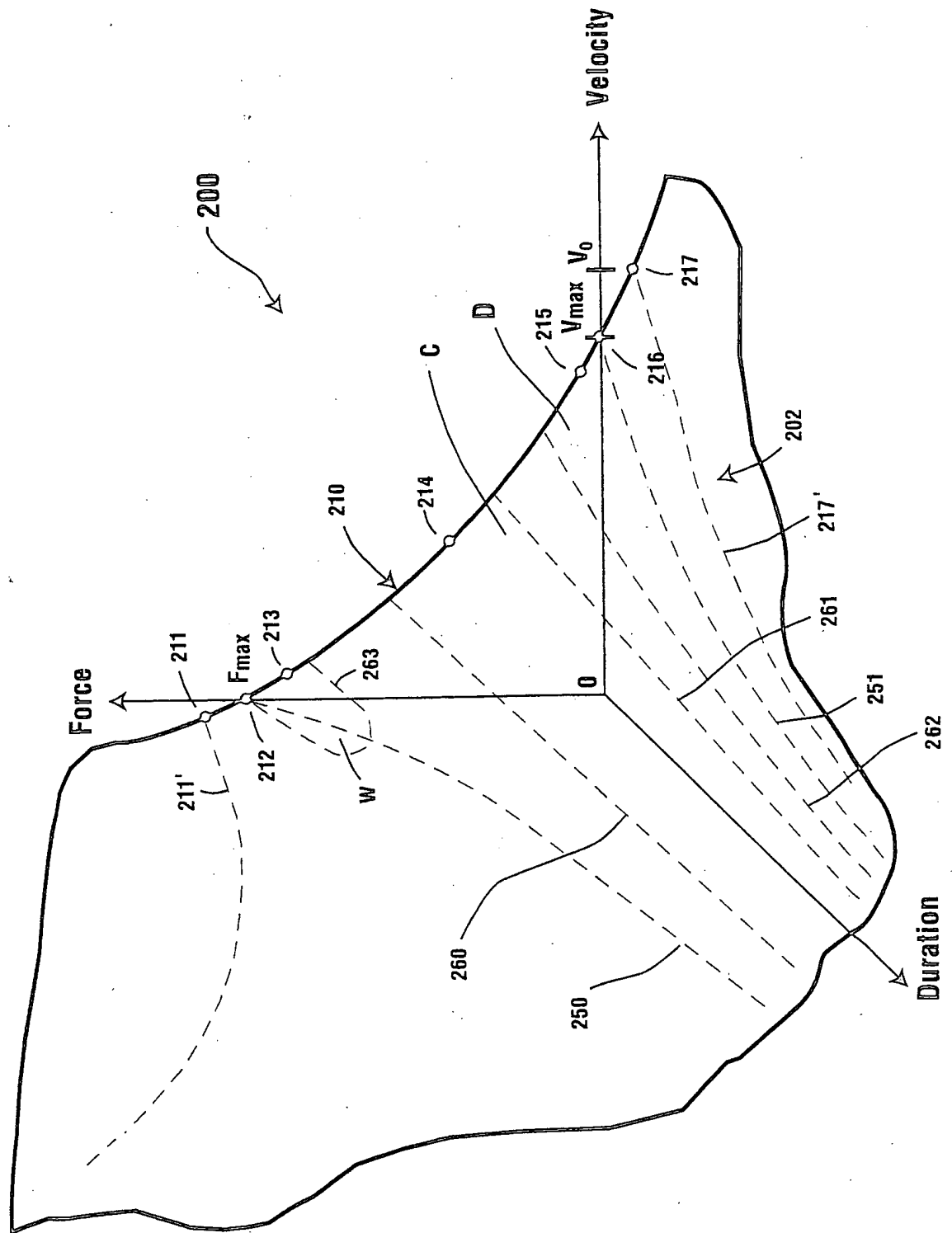


Fig. 3



Fig. 4A

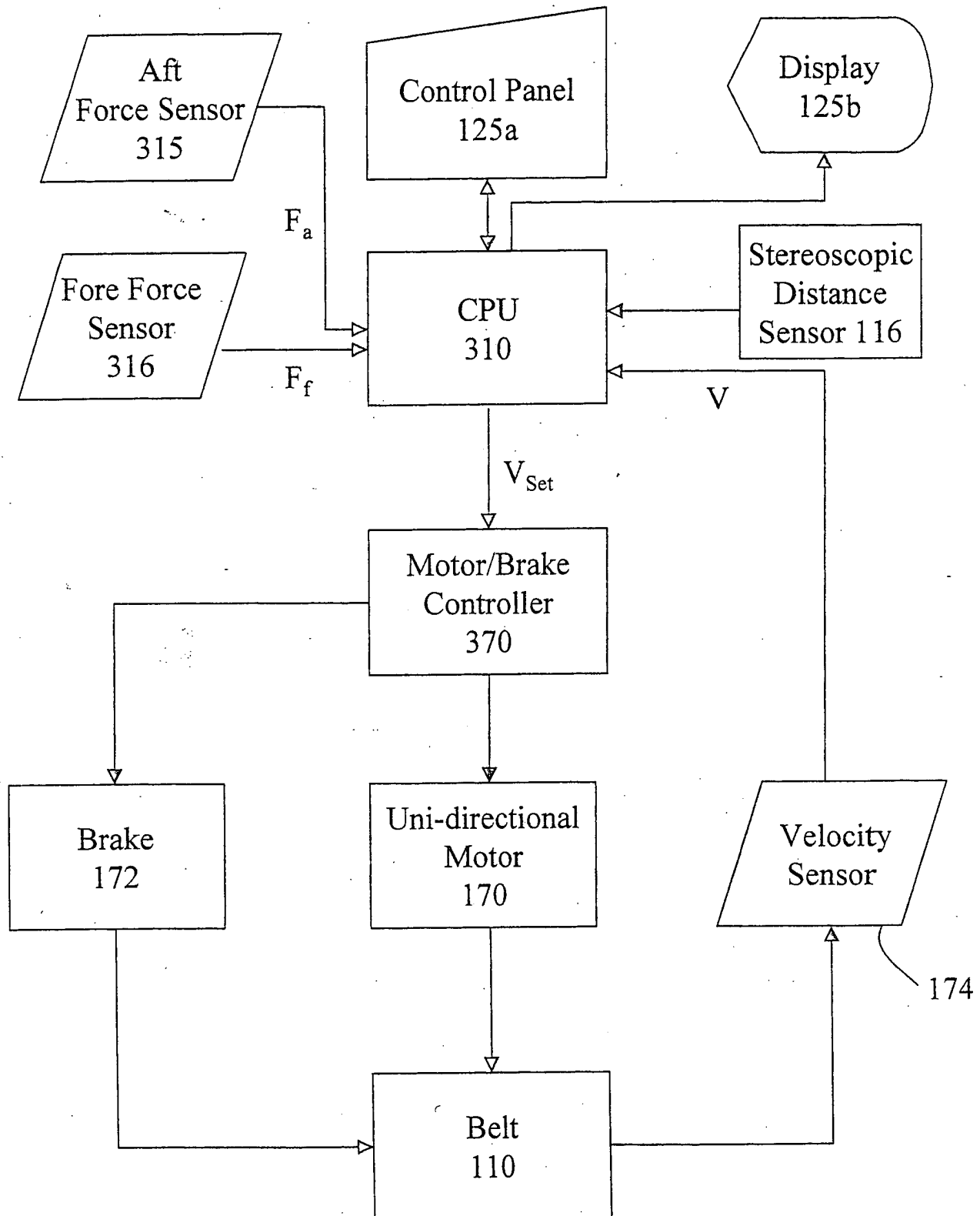


Fig. 4B

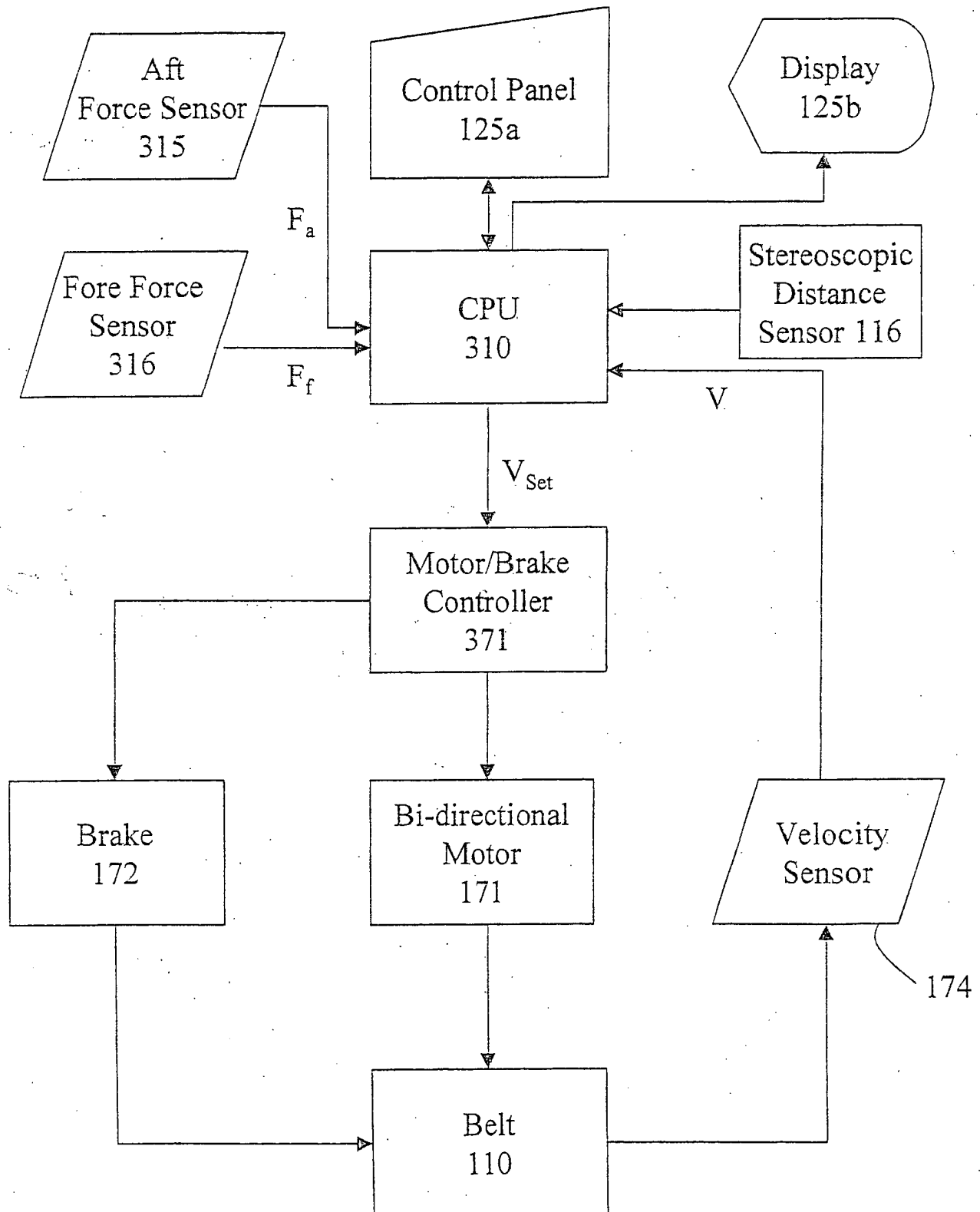


Fig. 4C

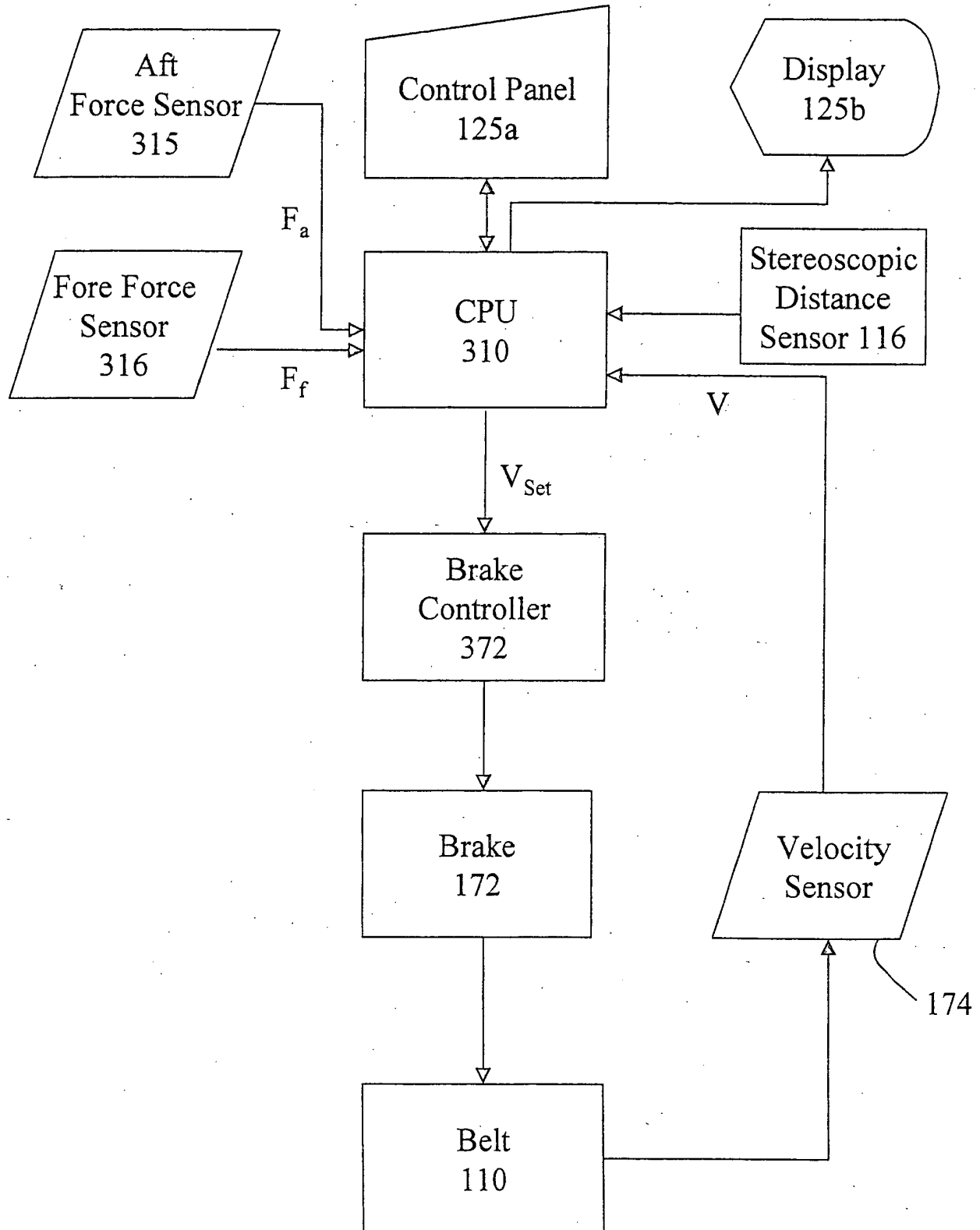
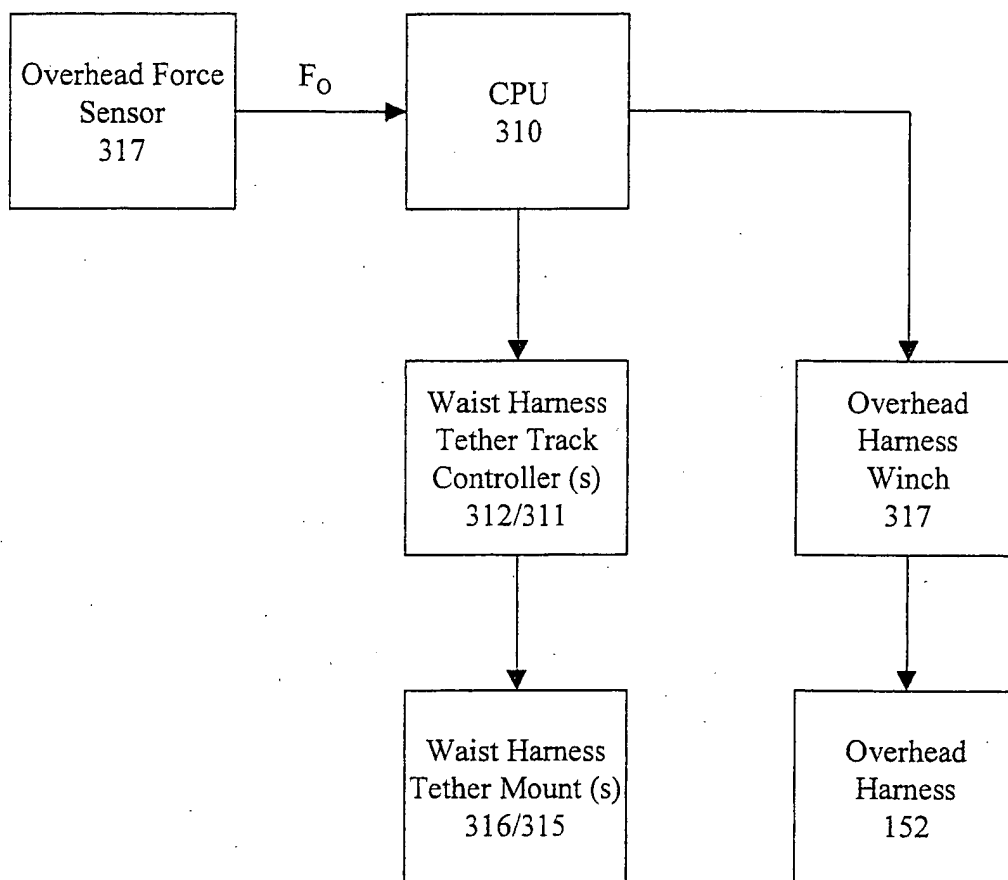
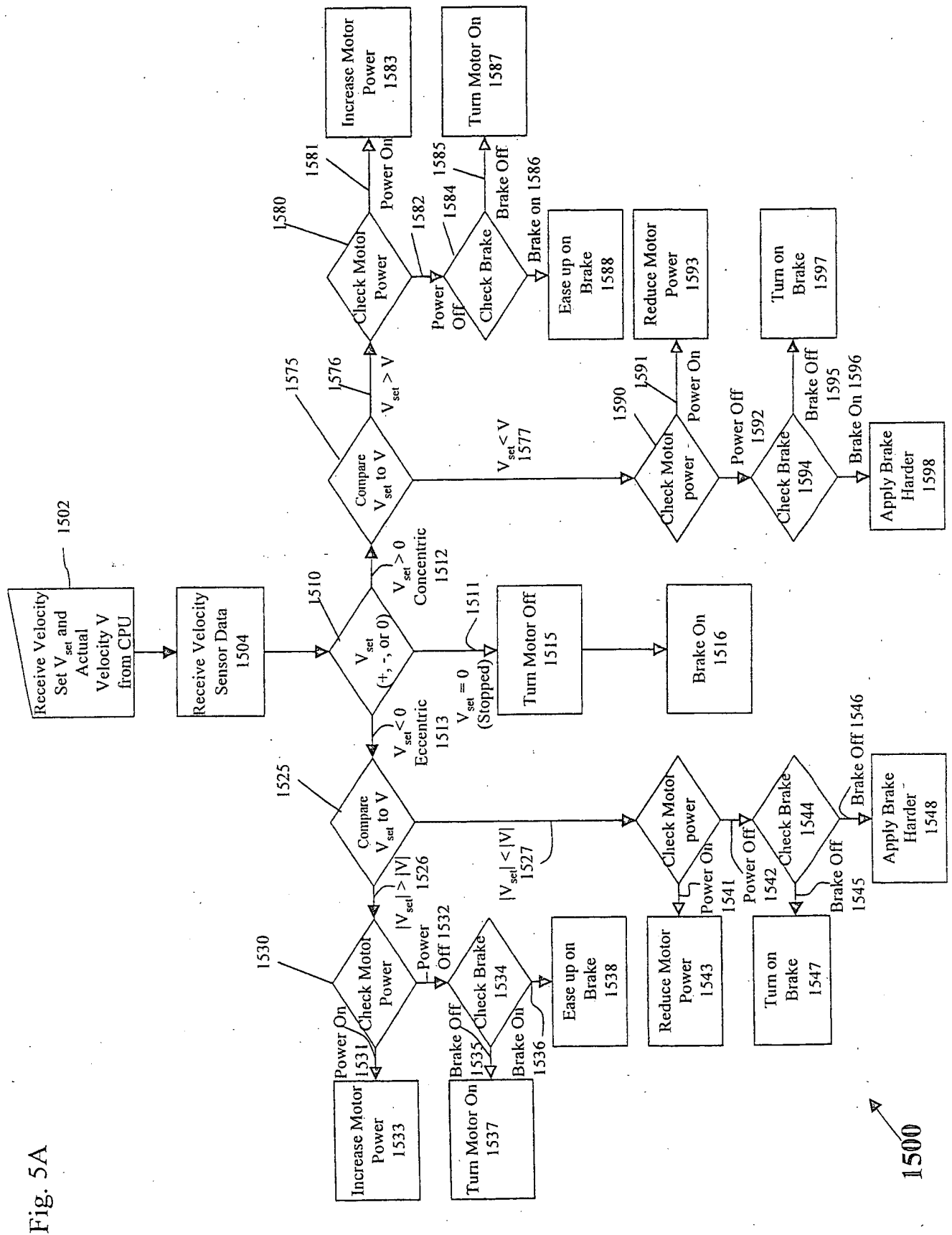


Fig. 4D





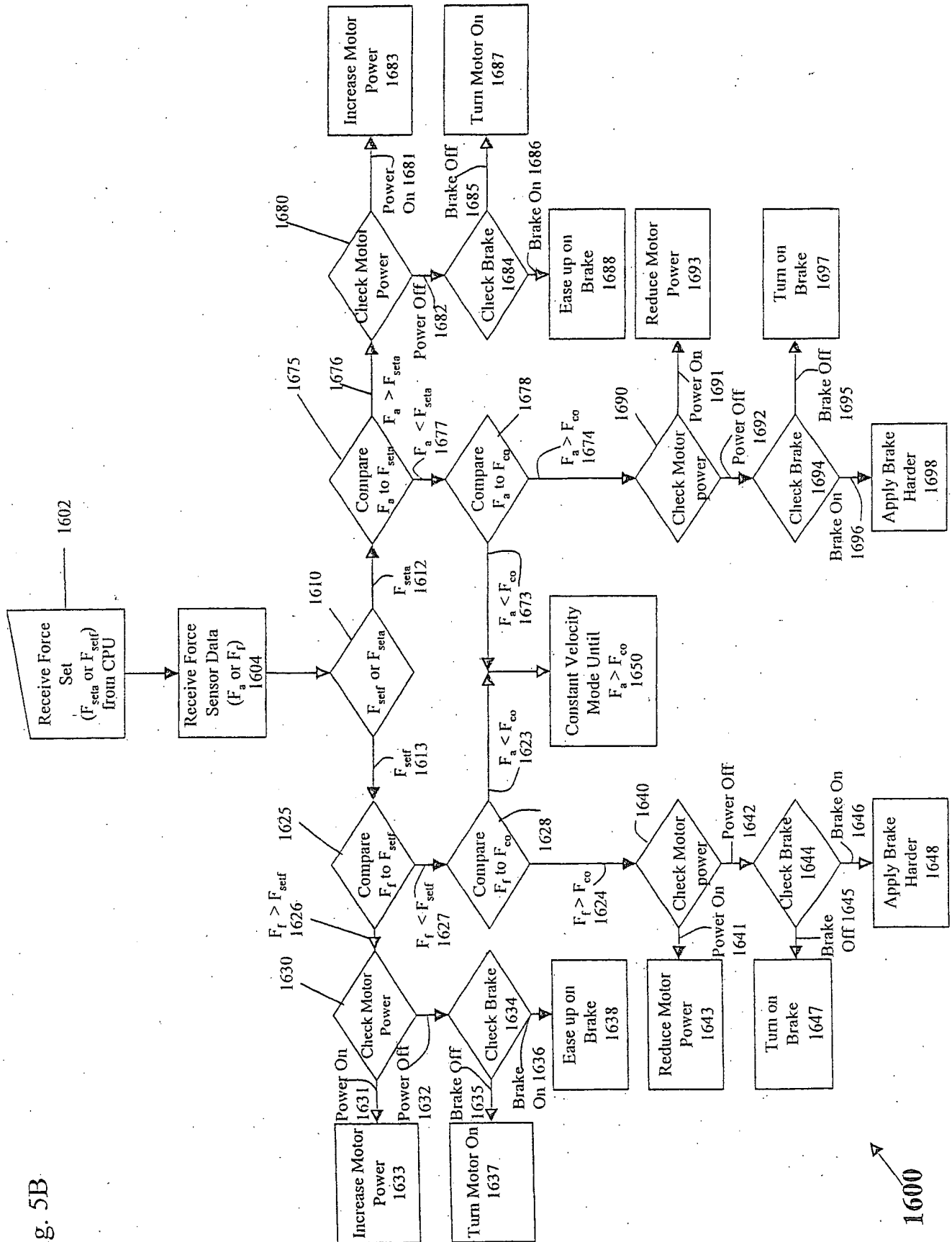
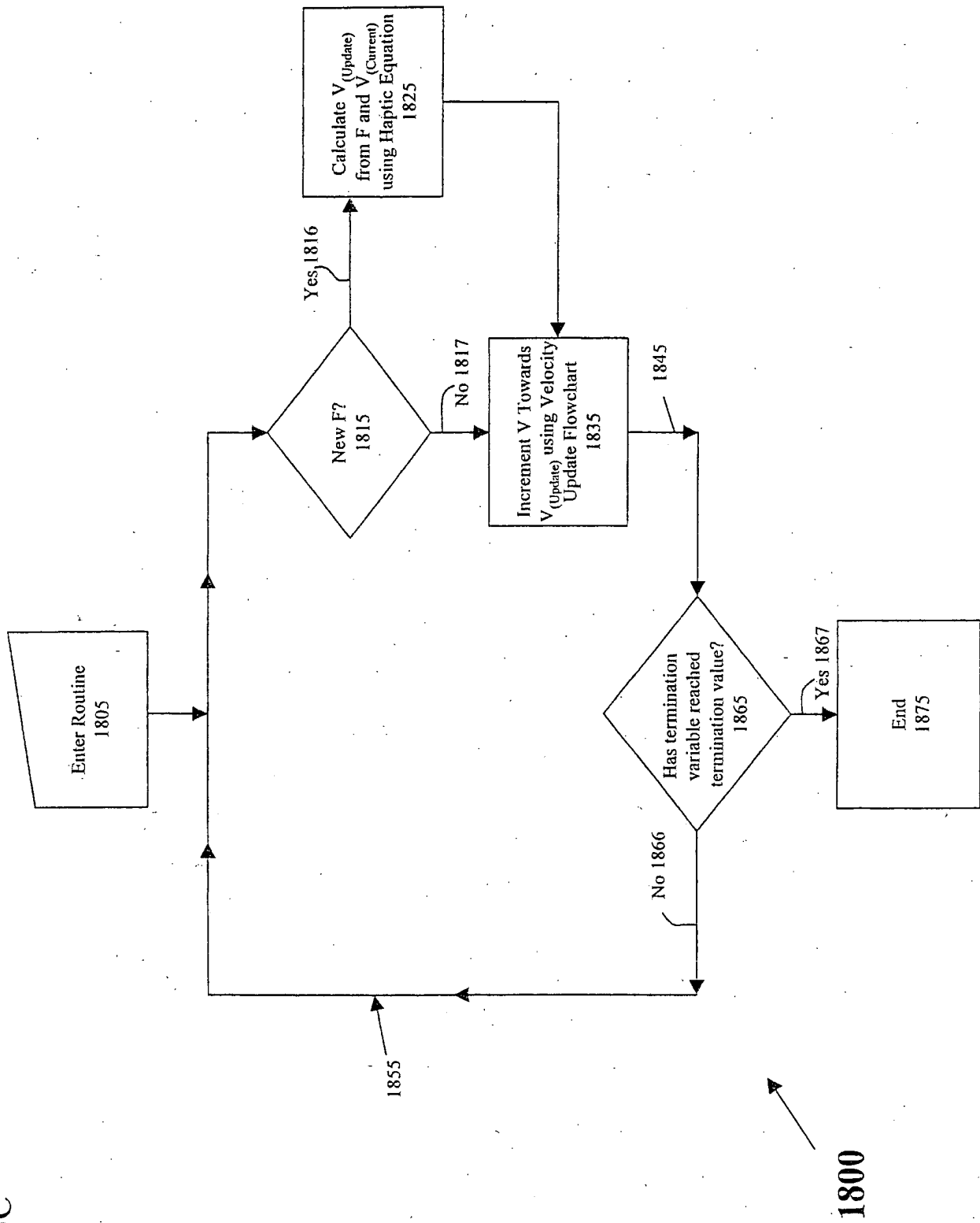
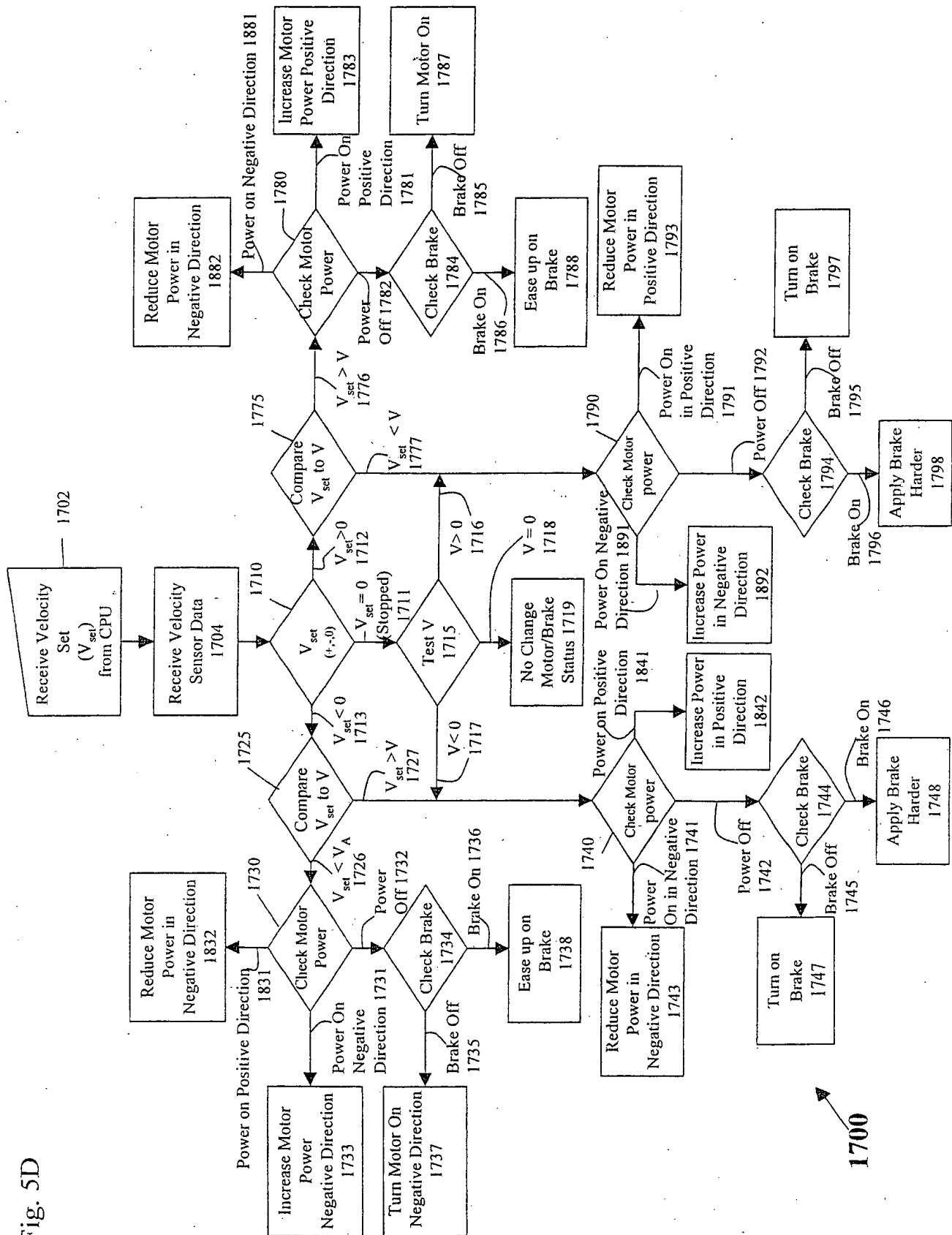


Fig. 5C







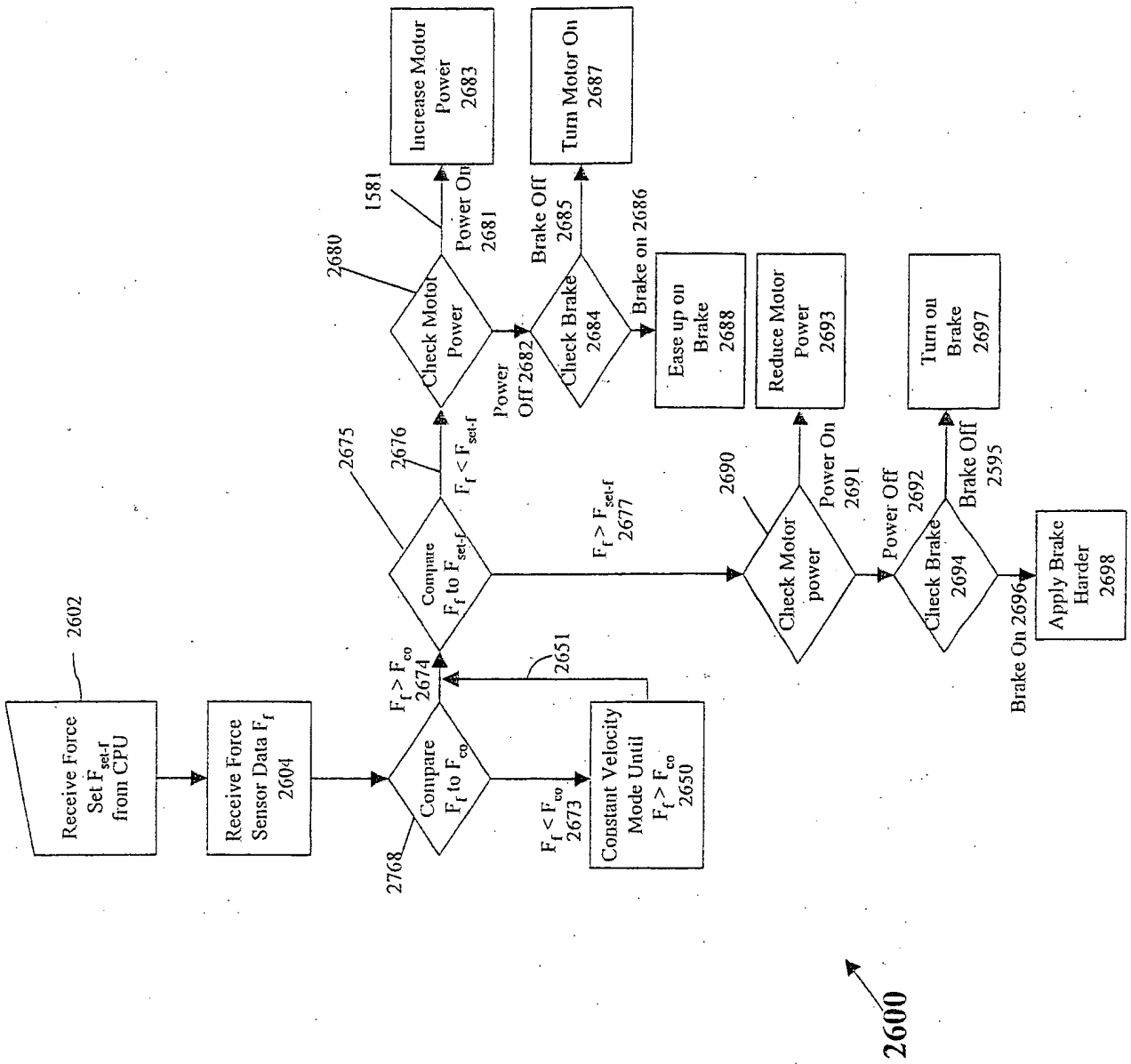
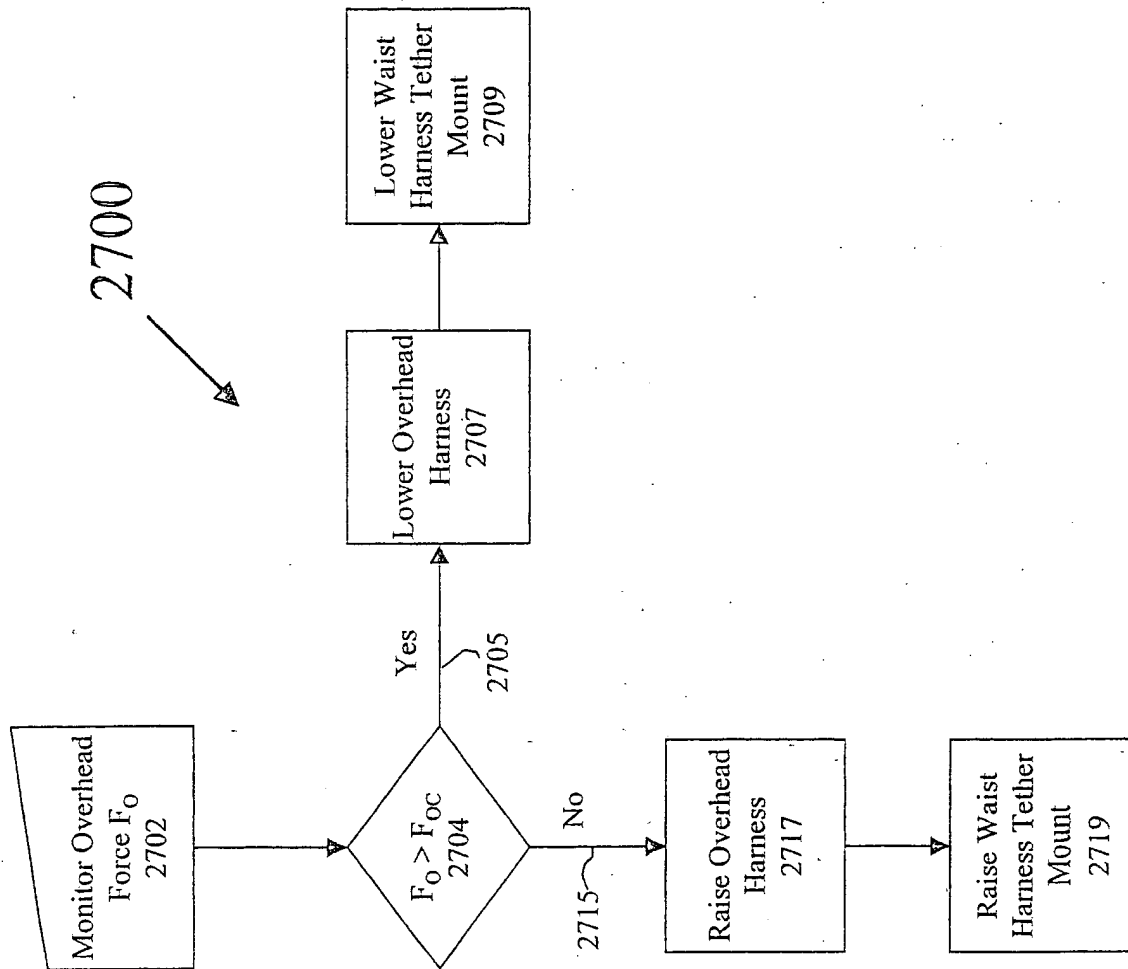


Fig. 5F



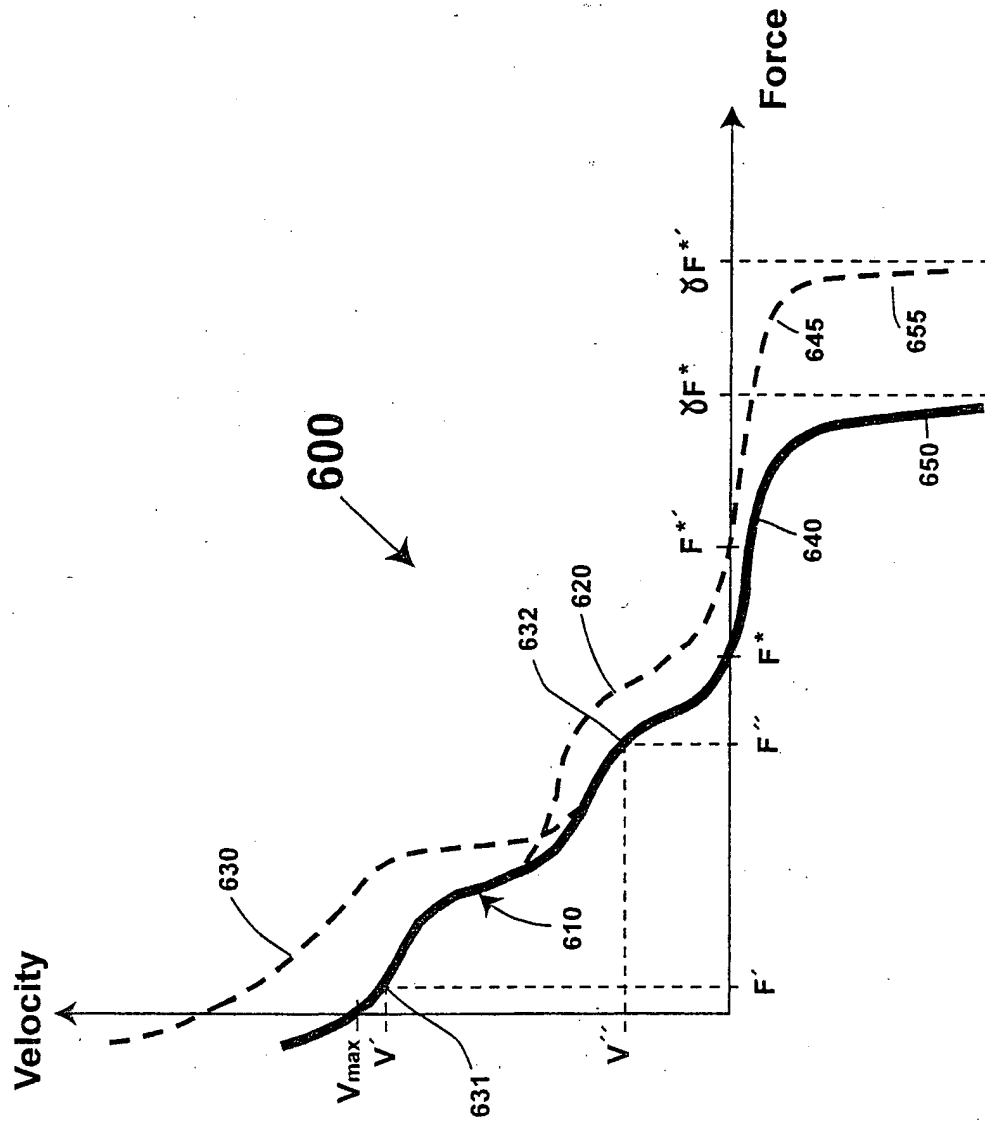


Fig. 6

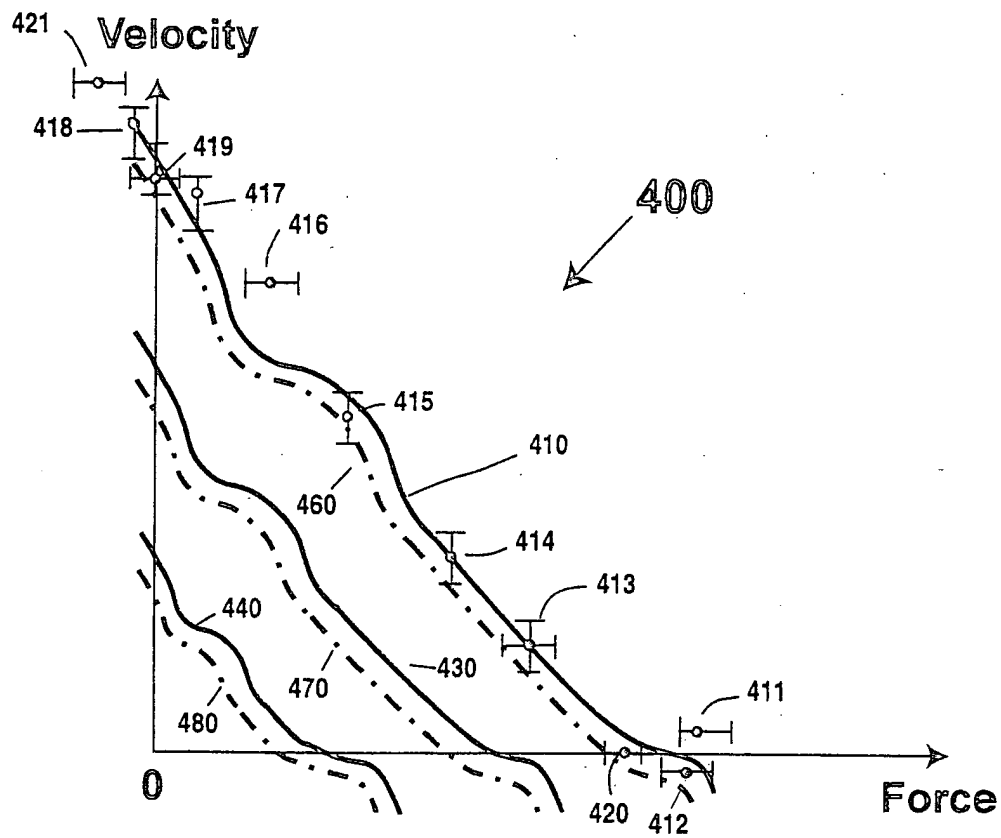


Fig. 7

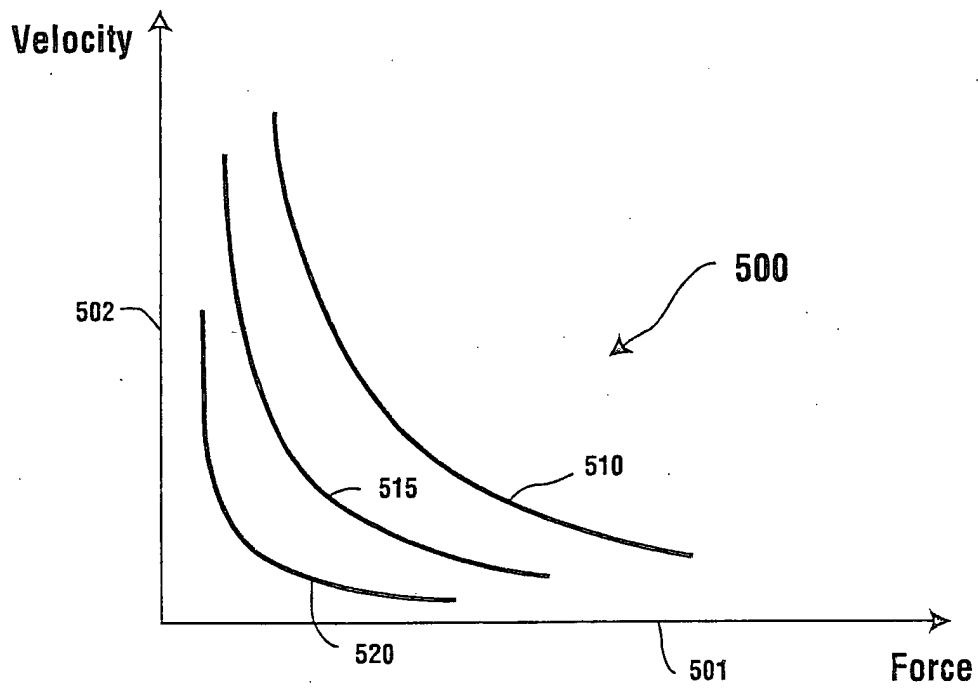


Fig. 8

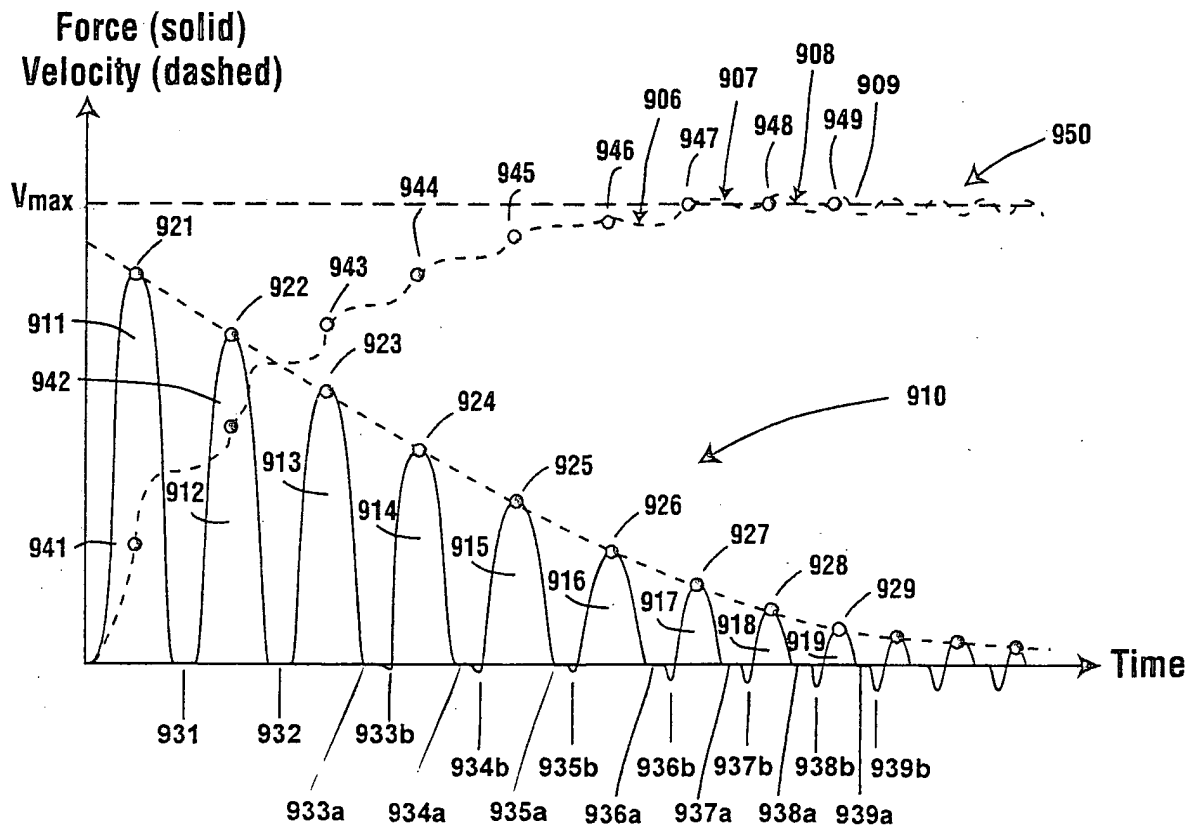
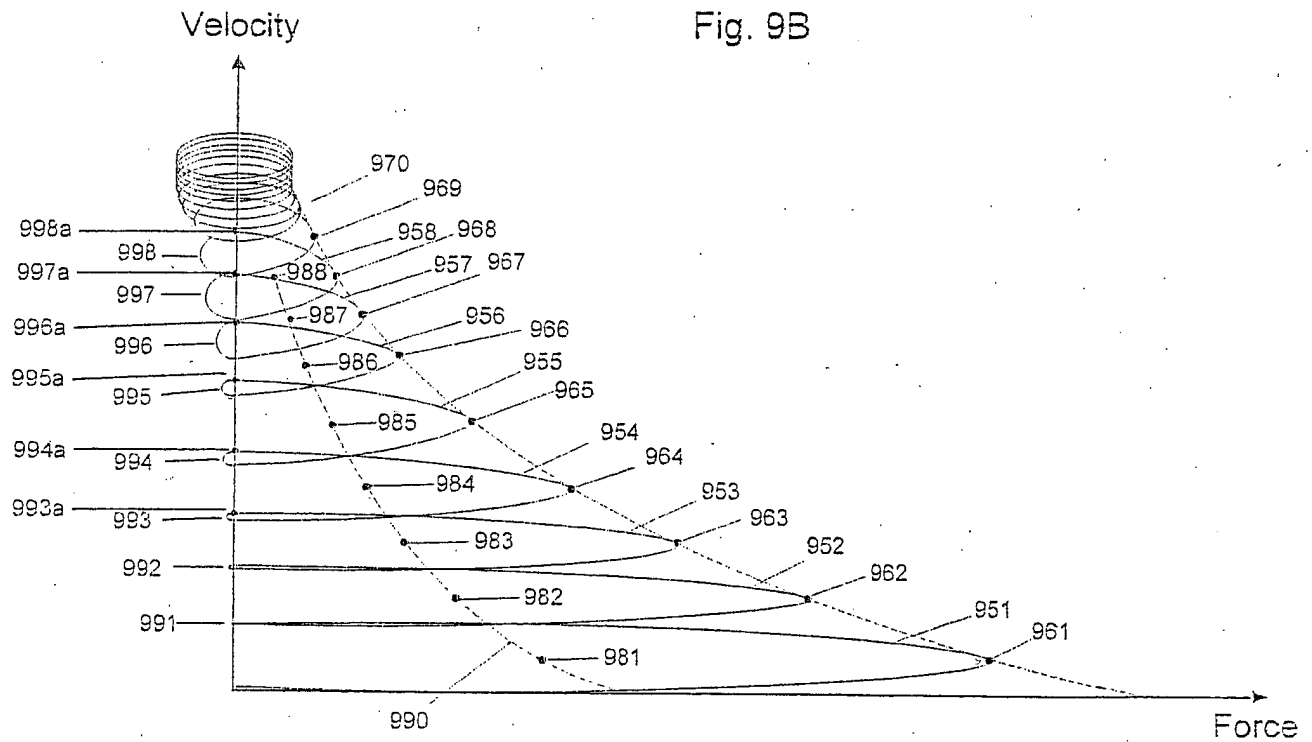


Fig. 9A



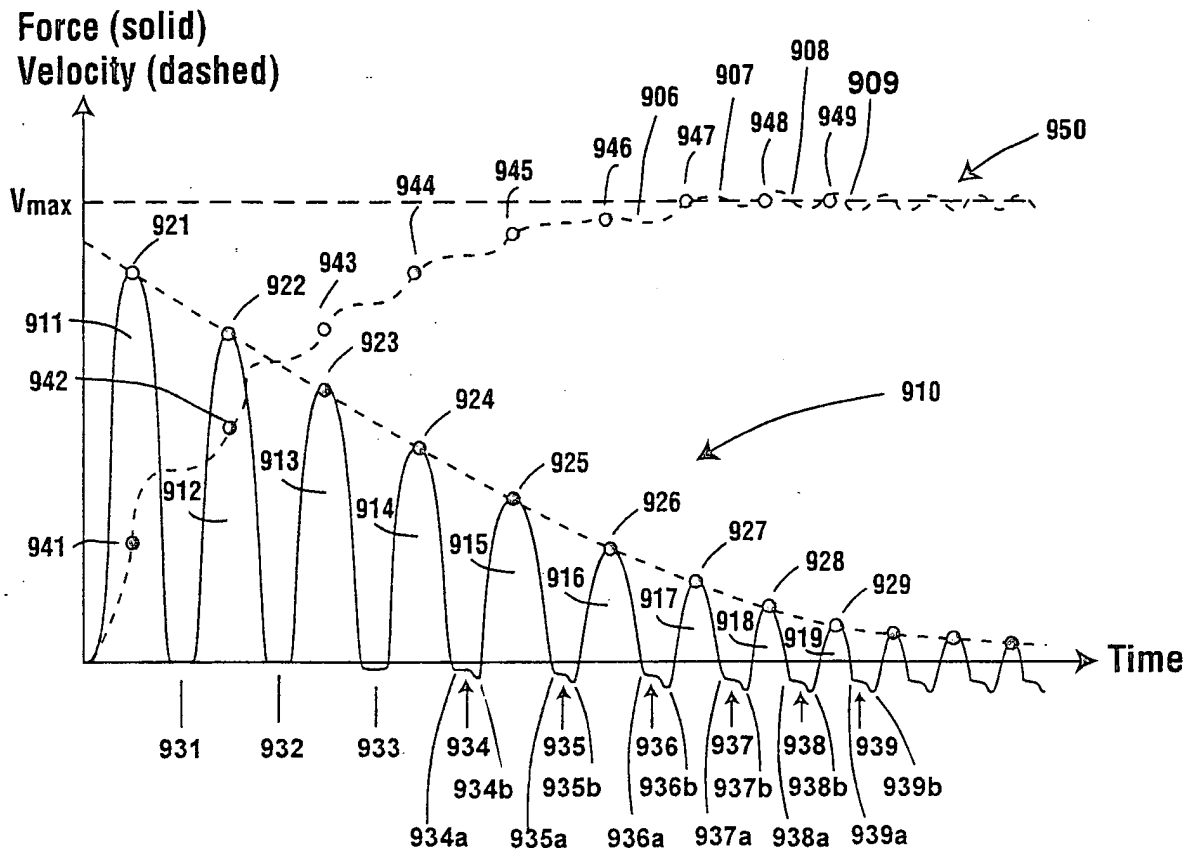


Fig. 9C



